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Kennecott

December 6, 1991

Mr. D. Wayne Hedberg
Permit Supervisor
Minerals Regulatory Program
Department of Natural Resources
Division of Oil, Gas, and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, UT 84180-1203

Subject: Fourth Line Mill Expansion Amendment, Kennecott Utah Copper (KUC), Response to September 23, 1991, Letter, M/035/003, Salt lake County, Utah.

Dear Mr. Hedberg:

Kennecott has reviewed comments related to the Fourth Line Mill Expansion Amendment detailed in your September 23, 1991, letter. Responses are as follows:

1. Comment:

On Page 7 of the plan, a total area of 168 acres is given for both permanent and temporarily disturbed areas. Page 10 and 11 discuss a total final disturbed reclamation acreage of 136. Page 12 indicates that 22 acres will not be reclaimed resulting from variances obtained in 1986. According to our calculations, this means 146 acres (168-22) will require reclamation, 10 acres more than what is discussed in the plan.

Our interpretation of the information presented in the plan indicates that 32 acres will be reclaimed at final reclamation. Please verify these figures and the acreage figure for total reclamation (is it 146 or 136 acres); and re-evaluate your surety amount accordingly.

Response:

The total of 168 acres disturbed is correct. Of that total, 32 acres consists of temporary construction disturbance and will be reclaimed following completion of construction

activities. These areas comprise contractor laydown yards, batchplant, offices and parking, haul roads, service roads, and miscellaneous disturbance necessary during construction activities (168 - 32 = 136 acres).

The remaining disturbed area consists of the 4th line mill, ore storage, administrative offices, service and access roads, and necessary ancillary facilities. Of this 136 acres, 4 acres of disturbance is associated with the installation of a stormwater pipeline tie-in to the existing tailings line. This disturbance will be retopsoiled and seeded following installation of the pipeline.

Of the remaining 132 acres, 110 acres will be topsoiled and seeded upon cessation of plant operations. The remaining 22 acres consisting of access, pipeline services roads, and right-of-way will remain operational beyond closure of the 4th line facilities.

32 acres	- Post construction reclamation
4 acres	- Pipeline installation and reclamation
110 acres	- Reclamation at close of facilities
22 acres	- Remain operational
168 acres	- Total disturbance

2. Comment:

The Revegetation Test Plot component of this plan is acceptable as proposed in the plan. However, Kennecott has not acted to implement this project as described in the plan. Plot establishment was to have occurred last fall (1990) and some type of an evaluation of these plots was to have occurred the year following test plot establishment. It is unclear, from the discussion on pages 14 and 15 of the plan, whether the time frame for evaluation is to be one year after establishment, or two years from the date of establishment. This must be clarified in the plan. The Division requests that evaluation begin one year after establishment.

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Final approval for this plan will not be made until KUC demonstrates to the Division, that the revegetation test plot project is being implemented correctly. The Division will require: 1. documentation of seed mixtures used (tags from seed bags) and seed application rates; 2. verification of the soil treatments discussed in the plan and; 3. an onsite inspection once the plots have been set up correctly and seeded.

Response:

Plot establishment was initiated in the Fall of 1990 with seedbed preparation and planting of four subplots. Seventeen individual species corresponding to the seed mix outlined in Table 2, page 23 of the NOI, were planted on "A" horizon compacted and non-compacted and "B" horizon compacted and non-compacted subplots. The remaining subplots shown on Figure 1 are scheduled for preparation and planting in the Spring and Fall of 1992. The seed mix will remain the same as previously utilized. The remaining subplots will be used to test new reclamation species and hybrids as they become available.

Plot evaluation will take place beginning in the second year following planting. This will allow for a complete growing season following germination which KUC feels will provide a more representative basis for study.

Ripping and/or tilling, while a normal part of seedbed preparation, will not be incorporated as one of the variables. Since the specific methods used to establish a uniform seedbed vary with the soil type and level of compaction, one or more of the mechanical means available may be employed to achieve the desired result. Ripping, tilling, discing, scarifying, etc. are not in themselves variables but methods employed to achieve optimum conditions for the germinating seeds by reducing compaction, increasing soil surface area and providing a uniform seedbed.

Enclosed are 3 sets of revised pages 14, 15, and 20 (Figure 1) for insertion into the DOGM's copies of the 4th Line NOI Amendment. The text modifications incorporated on these pages reflect concerns detailed in the DOGM's September 23, 1991, written correspondence and comments expressed by DOGM personnel during the November 7, 1991, field inspection of the 4th line's test plot.

A new reclamation contract and revised reclamation surety are in preparation and will be forwarded to your office as soon as they are completed.

Please contact Don Deines at 569-6698 or myself, if you have any additional concerns or questions.

Sincerely,

Fred Fox
Acting Director,
Environmental Affairs

DD:dbw

Attachment

cc: Don Deines

2. Plot Study

The plot study is designed to confirm propagation and growth characteristics of known Kennecott reclamation species. In addition, new hybrids that become available will be tested as conditions warrant. Two soil types analogous to stripped areas ("B" horizon or subsoil) and disturbed or retopsoiled areas ("A" horizon or topsoil) plus compacted and non-compacted conditions will be incorporated into the plot study as shown on figure 1.

Several factors will not be varied from plot to plot. Wheat and wheatgrass hybrid (Regreen™) will be added to all plots to provide cover and organic matter; the final reclamation seed mixture (Table 2) will be used uniformly on the series of subplots shown on Figure 1; and all legumes will be pre-inoculated with nitrogen fixing microbes. The above described practices are a standard portion of Kennecott's ongoing reclamation program and will be included in any final reclamation plan.

The proposed location of the study area is shown on Dwg. No. 271-SKC-116 Rev. **H.** The proposed study area layout is shown on the Soil/ Revegetation Test Plot Plan (Figure 1). Each subplot will be 20 feet by 30 feet. Each subplot is randomly placed to make statistical comparisons possible. The entire one acre study area will be fenced to restrict wildlife access.

The test plots will be evaluated on the basis of percent cover and species frequency. Evaluations will be performed three times per year in the spring (April, May), summer (July) and fall (September, October). **Project review** will begin in the second year following planting of the test plots. An undisturbed area of natural vegetation near the test plots will also be evaluated for comparative purposes.

3. Individual Species Study

Evaluation results of the test plots will be used to confirm or modify the final reclamation seed mixture. A minimum of three rows of each specie will be planted. The rows will be approximately 15 feet long.

4. Schedule

Initially, one complete set of four subplots will be prepared and planted in the fall of 1990. These four subplots represent both "A" and "B" horizon soils in compacted and uncompacted condition.

Evaluation will begin two years following establishment to determine germination success and will continue yearly for 10 years. A determination will be made comparing the reclamation soil procedures.

VI. Variance

There are no new variances requested as a result of this notice of intent to amend mining operations for the Copperton concentrator fourth mill line expansion.

VII. Reclamation Surety

Tables 3 through 17 presented at the end of this document detail the itemized reclamation cost estimates for determining reclamation surety adjustments to accomplish reclamation of the facilities and disturbed areas as the result of the Copperton concentrator fourth mill line expansion. Both the permanent and temporary disturbed areas and facilities were considered in the reclamation cost estimates.

VIII. Compliance with Other State and Local Regulations

KUC **has worked** with other State and local regulatory agencies to obtain the necessary approvals for the proposed facilities and activities associated with the Copperton concentrator fourth mill line expansion. **A** series of appendices, one for each regulatory agency, **is** included as part of this document.

This section lists all other State and local regulatory agencies through which KUC must obtain approvals and describes their jurisdiction over the Copperton concentrator fourth mill line expansion.

A. Salt Lake County

1. Sanitary Wastewater Disposal System

The existing septic tank and associated absorption fields are shown in Dwg. No. 271-SKC-115, Rev. **C**. The size of the proposed

	"A" SOIL	"B" SOIL	"A" SOIL	"B" SOIL	"A" SOIL	"B" SOIL
NON-COMPACTED SOIL	FALL	1992	SPRING	1992	FALL	1990
COMPACTED SOIL	FALL	1992	SPRING	1992	FALL	1990
VARIABLE						

FIGURE 1

SOIL/REVEGETATION TEST PLOT PLAN
KENNECOTT UTAH COPPER CORPORATION, COPPERTON CONCENTRATOR
FOURTH MILL LINE EXPANSION